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09/938,838	08/27/2001	Kuen-dong Ha	1568.1023	1095

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STAAS & HALSEY LLP
SUITE 700
1201 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER	
PERRY, ANTHONY T	
ART UNIT	PAPER NUMBER
2879	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/938,838	Applicant(s) HA ET AL.	
	Examiner Anthony T Perry	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 June 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

Applicant's amendment to the specification, filed on June 16, 2003 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4-11, 13-15, 18-21, 23, 25, 27-35, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (JP 2000-003682) in view of Heyman et al. (US 6,246,164).

Regarding claim 1, Fig. 1 of the Yamamoto reference discloses a mask frame assembly for a color cathode ray tube, comprising first and second support members 3a,b spaced out a predetermined distance. Fig. 1 teaches the use of first and second resilient support members 3c,d installed between the first and second support members supporting the first and second support members with each of the first and second resilient support members 3c,d comprising supports fixed to the first and second support members and a connection portion connecting the supports. A mask 2 is installed at the first and second support members 3a,b such that tension is applied thereto. The mask 2 has a plurality of electron beam through holes. The mask frame assembly further includes a compensating unit 18i connected between the first and second support members 3a,b. Yamamoto does is silent in regards to what material the compensating unit is formed of.

However, Heyman teaches the compensating unit 44 being formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members so to relieve stress in the compliant sections and intermediary members while also reducing tension in the mask during high temperature processing (col. 3, line 34 - col. 4, line 1). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used a compensating unit 44 formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members so to relieve stress in the compliant sections and intermediary members while also reducing tension in the mask during high temperature processing.

Regarding claim 2, the compensating unit taught by Yamamoto in Fig. 7 has both ends fixed to the supports of the respective first and second resilient support members 3c,d. It is noted that the applicant's specific form of the compensating unit being flat bars does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any form (flat, L-shaped, rod shaped, etc.) of the compensating unit.

Furthermore, the specification of the present application teaches that the compensating unit is not limited a shape of a flat bar but can be in the form of an L-shape (page 16, lines 7-9).

Regarding claims 4-10, 27-28, 31-32, and 35, Fig. 1 of the Yamamoto reference discloses the first and second support members 3a,b comprising a keeper supporting the mask 2 and a flange extending inward from the edge of the keeper. The compensating unit 18i comprises a pair of bars each having both ends screwed to the respective ones of the keepers of the first and second support members 3a,b. Yamamoto does not specifically teach the compensating unit

being fixed to the flanges of the first and second support members. Nor does it specifically teach the use of brackets for fixing the compensating unit. However, it is noted that the applicant's specific location of the compensating unit being fixed to the flanges (facing or facing away from the supports) of the support members or the compensating unit being fixed to brackets, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any method (using screws, brackets, flanges, etc.) for fixing the compensating unit as long as the compensating unit is fixed between the first and second support members.

Regarding claim 11, the Heyman reference teaches that the thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members (col. 3, line 29 – col. 4, line 4).

The combination in the rejection of claim 1 applies.

Regarding claims 13-14, Fig. 1 of the Yamamoto reference discloses a mask frame assembly for a color cathode ray tube, comprising first and second support members 3a,b spaced out a predetermined distance. Fig. 1 teaches the use of first and second resilient support members 3c,d installed between the first and second support members supporting the first and second support members with each of the first and second resilient support members 3c,d comprising supports fixed to the first and second support members and a connection portion connecting the supports. A mask 2 is installed at the first and second support members 3a,b such that tension is applied thereto. The mask 2 has a plurality of electron beam through holes. The mask frame assembly further includes a compensating unit 18i connected between the first and

second support members 3a,b. Yamamoto does is silent in regards to what material the compensating unit is formed of.

However, Heyman teaches the compensating unit 44 being formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members so to relieve stress in the compliant sections and intermediary members while also reducing tension in the mask during high temperature processing (col. 3, line 34 - col. 4, line 1). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used a compensating unit 44 formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members so to relieve stress in the compliant sections and intermediary members while also reducing tension in the mask during high temperature processing.

Regarding the limitation of values of a mask assembly that satisfy relation of 0.1 less than or equal to $(A\times H^2\times \text{delta}\alpha\times 10^4)/I$ less than 1, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a working range for the claimed device, since optimization of workable ranges is considered within the skill of the art.

Regarding claim 15, the compensating unit taught by Yamamoto in Fig. 7 has both ends fixed to the supports of the respective first and second resilient support members 3c,d. It is noted that the applicant's specific form of the compensating unit being flat bars does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in

the art would have found obvious to select any form (flat, L-shaped, rod shaped, etc.) of the compensating unit.

Furthermore, the specification of the present application teaches that the compensating unit is not limited a shape of a flat bar but can be in the form of an L-shape (page 16, lines 7-9).

Regarding claims 18-20, 29-30, and 33-34, Fig. 1 of the Yamamoto reference discloses the first and second support members 3a,b comprising a keeper supporting the mask 2 and a flange extending inward from the edge of the keeper. The compensating unit 18i comprises a pair of bars each having both ends screwed to the respective ones of the keepers of the first and second support members 3a,b. Yamamoto does not specifically teach the compensating unit being fixed to the flanges of the first and second support members. Nor does it specifically teach the use of brackets for fixing the compensating unit. However, it is noted that the applicant's specific location of the compensating unit being fixed to the flanges (facing or facing away from the supports) of the support members or the compensating unit being fixed to brackets, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any method (using screws, brackets, flanges, etc.) for fixing the compensating unit as long as the compensating unit is fixed between the first and second support members.

Regarding claim 21, the Heyman reference teaches that the thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members (col. 3, line 29 – col. 4, line 4).

The combination in the rejection of claims 13-14 applies.

Regarding claims 23 and 39, Fig. 1 of the Yamamoto reference discloses a mask frame assembly for a color cathode ray tube, comprising first and second support members 3a,b spaced out a predetermined distance. Fig. 1 teaches the use of first and second resilient support members 3c,d installed between the first and second support members supporting the first and second support members with each of the first and second resilient support members 3c,d comprising supports fixed to the first and second support members and a connection portion connecting the supports. A mask 2 is installed at the first and second support members 3a,b such that tension is applied thereto. The mask 2 has a plurality of electron beam through holes. The mask frame assembly further includes a compensating unit 18i connected between the first and second support members 3a,b. Yamamoto does is silent in regards to what material the compensating unit is formed of.

However, Heyman teaches the compensating unit 44 being formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members so to relieve stress in the compliant sections and intermediary members while also reducing tension in the mask during high temperature processing (col. 3, line 34 - col. 4, line 1). Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used a compensating unit 44 formed of a material having a lower thermal expansion coefficient than that of the first and second resilient support members so to relieve stress in the compliant sections and intermediary members while also reducing tension in the mask during high temperature processing.

The recitation "so that the tension of the mask is transferred to the compensating unit during the annealing of the frameand the mask and then the tension is re-transferred from the compensating means unit to the mask after cooling, thereby maintaining an initial tension of the

mask" has not been given patentable weight because is considered an intended used recitation. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations.

Regarding claim 25, the Heyman reference teaches that the thermal expansion coefficient of the mask is greater than that of the compensating unit and is equal to or greater than that of the first and second resilient support members (col. 3, line 29 – col. 4, line 4).

The combination in the rejection of claim 23 applies.

Claims 3, 16, 17, 24, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (JP 2000-003682) in view of Heyman et al. (US 6,246,164) as applied to claims 1, 13, and 23 above, and further in view of Ichigaya et al. (US 4,798,992).

Regarding claims 3, 16, 17, 24, and 36-38 the use of dampening devices to reduce vibrations is well known in the art as evidenced by Ichigaya (col. 8, lines 40-69).

It is noted that the specific form of the vibration reduction unit comprising at least one via-hole formed at each bar and a corresponding vibration preventing member shakably installed in the via-hole does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any type (spring, damping wire, etc.) of vibration reduction unit for preventing the compensating unit from vibrating.

Furthermore, the specification of the present application, page 16, lines 7-9 teaches that anything having a structure capable of preventing the compensating unit from vibrating can be used.

Rejections above apply.

Claims 12, 22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (JP 2000-003682) in view of Heyman et al. (US 6,246,164) as applied to claims 1, 13, and 23 above, and further in view of Kim et al. (US 6,437,496).

Regarding claims 12, 22, and 26, Yamamoto does not specifically teach mask using dummy bridges. However, Kim teaches that if the vertical pitch of the tie bars is too large, that is, if the vertical pitch of the tie bars is twice or more the horizontal pitch thereof, a reflection image of the tie bars is shown on the screen, which is unpleasant to viewers. To avoid this problem, U.S. Pat. No. 4,926,089 discloses a tensioned mask that includes a plurality of strips separated by slits having a predetermined pitch, and tie bars (real bridges) which interconnect the adjacent strips. Also, dummy bridges, which extend partially between but not interconnecting adjacent strips, are disposed between the adjacent tie bars to separate each slit into sub-slits having a predetermined interval (col. 1, lines 29-45).

Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to have used a mask as taught by Kim so as to prevent a reflection image of the tie bars from appearing on the screen.

Response to Arguments

Applicant's arguments, see pages 1-2, filed 6/16/03, with respect to claim 1 have been fully considered and are persuasive. The 102 rejection of claim 1 has been withdrawn.

Applicant's arguments, with respect to the 103 rejections, filed 6/16/03, have been fully considered but are not persuasive.

The Applicant is correct in stating that the Yamamoto (mistakenly written as Heyman in the Applicant's arguments) reference teaches a compensating unit 18i that is fastened by inside

and outside nuts after the blackening process. However, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is (703) 305-1799. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for this Group is (703) 308-7382.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [**Anthony.perry@uspto.gov**].

All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Anthony Perry
Patent Examiner
Art Unit 2879
July 29, 2003

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PRIMARY EXAMINER